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(71) Applicant: **INNUTTY, INC.** [US/US]; 1712 Hopkins
Crossroads, Minnetonka, MN 55305 (US).

(72) Inventors: **MCKNIGHT, Julie**; 909 Wetlyn Court, Farm-
ington, MN 55024 (US). **FROEMING, Eric**; 230 Central
Avenue North #119, Wayzata, MN 55391 (US).

(74) Agent: **BRUESS, Steven, C.**; Merchant & Gould P.C.,
P.O. Box 2903, Minneapolis, MN 55402-0903 (US).

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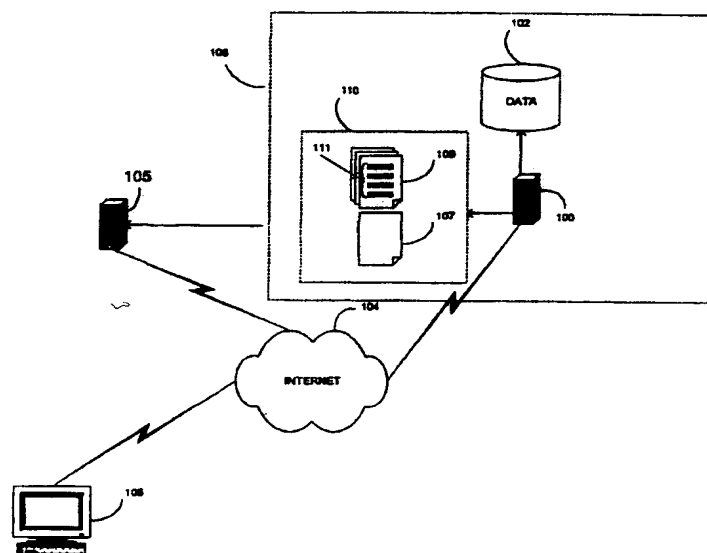
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(57) Abstract: A computerized method for automatically generating customized Internet services that are available through an agency. The method comprises providing at least one default service; providing a plurality of attributes; and automatically mapping predetermined attributes selected from the plurality of attributes with the default service, thereby creating a customized Internet service. Alternatively, a computerized method of generating a web page for posting on the Internet. The method comprises providing a page structure; providing a plurality of objects, each object relating to content used to form the web page; and mapping the content with the page structure, thereby creating a web page.

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SYSTEM AND METHOD FOR GENERATING INTERNET SERVICES

This application is being filed as a PCT International Patent application in the name of Innuity, Inc. a U.S. national corporation, designating all countries except the US, on 28 February 2001.

TECHNICAL FIELD

The present invention relates to a system and method for generating Internet services, and more particularly, to a system and method for automatically generating and publishing Internet services to a computer network.

BACKGROUND

The World Wide Web is a system of computing servers that are configured to operate on the Internet and provide access to Internet services, such as web sites, shopping carts, advertising banners and/or any other item that is published, posted, or utilized on the Internet. As electronic commerce continues to expand, organizations are continually seeking ways to deliver their products and/or services to users who access the Internet. Many organizations expend large amounts of resources attempting to develop and publish Internet services. Some Internet services, such as web sites, are created as specially formatted documents and are typically created using a computing language, such as hypertext markup language ("HTML"). Once these documents are created, they can be accessed via the World Wide Web using a web browser, such as Netscape Navigator™ or Microsoft's Internet Explorer™.

Typically, the development process associated with publishing Internet services to the World Wide Web requires an extensive undertaking. Oftentimes, the technical expertise required to generate competitive Internet services falls outside of the organization's core competencies. Thus, many organizations rely on outside consulting agencies to develop and/or publish Internet services to satisfy their business objectives.

There are several shortcomings that limit the ability of consulting agencies to develop high quality Internet services in an efficient manner. Typically, the development of the Internet services, such as web sites, involves preparing the source code for the documents supporting the Internet services. The development of the source code for the documents can be accomplished by either coding the documents from scratch or using an object-oriented design tool, such as Microsoft's FrontPage™. In either case, the Internet service designer typically captures user defined content that is published with and incorporated throughout the Internet

service. Often, the same information is captured repeatedly and coded at several locations throughout the document either manually or using the object-oriented design tool. Thus, the development process often tends to be tedious, slow, and expensive.

5 Furthermore, because the content is repeated throughout the source code for the document, the size of the document is unnecessarily large. Therefore, the document requires a large amount of storage capacity. Typically, these documents are stored in multiple locations for archival and version control purposes. Thus, in the event the production version of the Internet service is lost, an archived
10 copy of the document can be retrieved. However, maintaining multiple copies of the large documents files increases the amount of storage capacity and related overhead required for publishing the documents to the World Wide Web. This overhead drives up the cost of developing and providing web services.

In order to simplify development of web services, many developers
15 use static template files to lay out and create various aspects of the services such as the graphics and copyrighting. These static template files typically include presentation layout designs that specify the appearance and/or characteristics of the Internet service being generated. Because the appearance and/or characteristics are described in conjunction with the static template file, a new template is usually
20 created for each style and presentation layout that the Internet service designer wishes to create. As a result, the reusability and interchangeability between the styles and presentation layouts is limited.

Moreover, to deal with some of the inherent inefficiencies associated with the development of Internet services, some consulting agencies have developed
25 workflow plans. However, most workflow plans for developing Internet services are set up and designed to manage individual resource tasks and thus fail to provide a comprehensive approach to automating the activities associated with the generation of Internet services. As a result, many existing workflow methodologies are unable to drive large volumes of Internet services through a process in an efficient manner.

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SUMMARY

In general terms, the present invention relates to a system and method for mapping information to generate Internet services. One aspect of the invention maps certain attributes to a default Internet service offering to create a customized
35 Internet service that can be sold or offered to customers. An alternative aspect of the present invention is directed to generating a web page by mapping information into a predetermined page structure that can be posted on the Internet.

One embodiment of the present invention is directed to a computerized method for automatically generating customized Internet services that are available through an agency. The method comprises providing at least one default service; providing a plurality of attributes; and automatically mapping
5 predetermined attributes selected from the plurality of attributes with the default service, thereby creating a customized Internet service.

An alternative embodiment of the present invention is directed to a computerized method of generating a web page for posting on the Internet. The method comprises providing a page structure; providing a plurality of objects, each
10 object relating to content used to form the web page; and mapping the content with the page structure, thereby creating a web page.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a high-level diagram illustrating one possible embodiment of
15 a system and method for generating Internet services in accordance with the present invention;

FIG. 2 is a diagram of the system architecture that supports the system and method for automatically generating Internet services according to the present invention;

20 FIG. 3 is an overview block diagram of a system and method for automatically generating Internet services;

FIG. 4 is a more detailed block diagram of the system and method for automatically generating an Internet service as shown in FIG. 3;

FIG. 5, composed of FIGS. 5A-5C, are block diagrams of the
25 exemplary components generated after mapping the default Internet service offerings with the agency;

FIG. 6 is a block diagram detailing the workflow implementation associated with the various Internet services generated by the system and method of the present invention;

30 FIG. 7 is a block diagram illustrating the relationships between the various components of the database used to create a website;

FIG. 8 is a block diagram of the database architecture for automatically generating and publishing web services;

FIG. 9 is a more detailed block diagram illustrating the relationships
35 between the various components of the database used to automatically generate websites;

FIGS. 10A and 10B shows an example of the placeholders embedded within the source code for the page structure used to dynamically generate a web site/web page; and

FIGS. 11-16 are flowcharts illustrating the logic followed when
5 generating an Internet service according to the present invention.

DETAILED DESCRIPTION

Various embodiments of the present invention will be described in detail with reference to the drawings, wherein like reference numerals represent like
10 parts and assemblies throughout these several views. Reference to various embodiments does not limit the scope of the invention, which is limited only by the scope of the claims attached hereto.

The following discussion is intended to provide a brief, general description of a suitable computing environment in which the invention may be
15 implemented. Although not required, the invention will be described in the general context of computer-executable operations and instructions being executed by a general-purpose and programmable computing systems, such as an IBM-compatible personal computer (PC) or server. Generally, programmed operations perform particular tasks or implement particular abstract data types.

Moreover, the invention may be practiced with other computer
20 system configurations such as hand-held devices, multiprocessor systems, microprocessor-based or programmable consumer electronics, network PCs, minicomputers, and mainframe computers and computer specifically designed and configured to perform operations and functions such as those described herein. The
25 invention also may be practiced in distributed computing environments where tasks are performed by remote processing devices that are linked through a communications network. In a distributed computing environment, computer programs may be located in both local and remote memory storage devices.

The embodiments of the present invention are implemented as logical
30 operations in a system and method for automatically generating Internet services. The logical operations of the present invention are implemented: (1) as a sequence of implemented steps running on a computing system; and (2) as interconnected machine modules within the computing system. The implementation is a matter of choice dependent on the performance requirements of the computing system
35 implementing the invention and the components selected by or utilized by the users of the system. Accordingly, the logical operations making up the embodiment of the invention described herein are referred to variously as subsystems or modules.

With reference to FIG. 1, a computing environment for implementing the system and method for generating Internet services includes a development/production network 108 having one or more computing servers 100, one or more databases 102, and various other computing devices (not shown) connected thereto. It will be understood by one skilled in the art that the development/production network 108 can have many configurations. One possible embodiment for the development/production network 108 will be described in further detail in connection with FIG. 2 below.

The development/production network 108 is a system of computers configured to support the development and generation of Internet services 110. In one embodiment, the Internet services 110 may be published content that is viewable on a monitor. Examples of such content include web sites 109 or other related Internet-related service 107 such as, banners, shopping carts, etc. The Internet services 116 may also include other items or services that are utilized on, implemented with, or related to the Internet such as e-mail, reservation of domain names, processing financial transactions, processing banners, etc. For exemplary purposes only, examples are provided herein that relate to the creation of web sites. It is understood however, that the system and methods described herein can be used with the creation of any Internet service.

The web sites 109 are typically documents created in a computing language source code 111, such as hypertext markup language ("HTML") or eXtensible markup language ("XML"). The source code 111 controls the presentation and attributes of the information that is displayed in connection with the web site 109. For example, the source code 111 may control presentation and attributes of text, images, audio, or other information that is displayed in connection with the web site 109.

In one embodiment, the source code 111 is automatically generated using the database 102. The database 102 dynamically maps the information that is displayed in connection with the Internet services 110 with the presentation layout for presenting and displaying that information. The information that is displayed in connection with the Internet services 110 is entered and saved once in the database 102. Accordingly, the amount of effort required to generate the Internet services 110 is minimized. Likewise, the amount of storage capacity required to store the Internet services 110 is also minimized. Furthermore, in the event the Internet services 110 are damaged or destroyed, as explained in more detail below, the source code 111 can be regenerated easily and efficiently. One possible embodiment of the structure of the database 102 will be discussed in greater detail below in connection with FIGS. 7-10.

The development/production network 108 is in data communication with the communications network 104. In one embodiment, the communications network 104 is the Internet. Moreover, the development/production network 108 is configured to publish, post, or provide, the web content 110 on the communications network 104 such that a computer user is able to access and view them using a computing system 106. In one possible embodiment, the computing system 106 is a general purpose and programmable computing system, such as an IBM-compatible personal computer. Alternatively, the computing system 106 can be a laptop computer, workstation, palm- or hand-held computer, or any other device that can be used to access the Internet or other network. The computing system 106 typically has a resident operating system, such as those sold under the brand names Microsoft Windows™, Unix™, Linux™, DOS™, AIX™ or other similar operating systems. Furthermore, the computing system 106 has a web browser installed for accessing and viewing the content 110 via the communications network 104, such as those sold under the brand names Microsoft Internet Explorer™ or Netscape Navigator™.

In addition to web sites, the Internet services 107 may include electronic commerce transaction systems as well as promotional Internet services. Examples of Internet services 107 include, but are not limited to, Internet shopping carts, banners, registration with search engines, or other similar Internet products or services. The development/production network 108 is configured to operate with various third-party or vendor computing systems 105 that may provide support for the Internet services 110. For example, the vendor computing system 105 may be an Internet search engine, such as ExciteSM, InfoseekSM, YahooSM or other related Internet services.

Now referring to FIG. 2, one possible embodiment for the production/development network 108 is shown. The production/development network 108 shown illustrates an exemplary system architecture that may be used to support the system and method for generating Internet services 110, such as web 109 as well as other word-based services 107 that is discussed herein. The development and/or production of the Internet services 110 may occur over a network 112. In one embodiment, the network 112 is an intranet. Alternatively, the network 112 can be a local area network ("LAN"), a wide area network ("WAN"), a virtual private network ("VPN"), or any other suitable computing network for developing and producing Internet services.

The network 112 is configured to operate with several computing systems. The various computing systems that may be configured to operate with the Internet 112 may include, but are not limited to, a print/file server 114, a primary domain controller 116, a backup domain controller 118, and a development server

119. Additionally, peripheral equipment, such as printers, storage devices, or workstation computers may be configured to operate with the network 112. It will be understood by those skilled in the art that many other configurations and arrangements of the network, servers, and peripheral devices are possible.

5 The print/file server 114 stores and manages files accessible via the network 112. The print/file server 114 also manages the printing devices (not shown) that may be connected to the network 112. The primary domain controller 116 and the backup domain controller 118 manage the transfer of data between the various computing systems connected to the network 112.

10 The development server 119 manages the application software used by the Internet service designers 120 to capture data from the customer as well as to configure the Internet services 110. The application software used by the Internet service designers 120 will be described in greater detail below in connection with FIGS. 3 and 4. In one embodiment, the Internet service designer 120 communicates
15 with the customer via the telephone 121 and captures information related to the customer and his or her business. In an alternative embodiment, the customer can submit data to the network 112 electronically via the communications hub 122. The electronically submitted data can be used in connection with the Internet services 110. For example, the customer can electronically submit data using a palm- or
20 hand-held computer 123, laptop computer 124, telephone 125 or other similar communications device.

 The development server 119 also manages the software used to generate/re-generate and publish the Internet services 110 via the network 112. The development server 119 is configured to operate with the production database 102
25 that dynamically maps the information that is displayed in connection with the Internet services 110 with the presentation layout for presenting and displaying that information. One possible embodiment of the structure of the database 102 will be discussed below in connection with FIG. 7-10.

 A firewall 127 secures the network 112 and the data and application
30 software residing on the various computing servers from unauthorized access. All data that attempts to pass through (either into or out of the network 112) the firewall 127 is required to meet specified security criteria. A router 128 connects the network 112 to an Internet service provider ("ISP") router 130 which provides access to the web server 136 and the communications network 104. Data is sent and
35 received from the network 112 via communication carriers 129 and 131, respectively. In one embodiment, the communication carriers 129 and 131 are dedicated phone connection systems that allow high-speed Internet connections, such as a T1 carrier or a T3 carrier.

Once the Internet service 110 has been generated on the network 112, the Internet services 110 are made available over the Internet in a manner appropriate for the type of service. For example, published content such as web pages, shopping carts, and on-line stores are saved to the web server 136 in the data storage area 138. For example, for Internet services 110 that are web sites 109, the generated HTML document created on the development server 119 is stored in the data storage area 138 and posted by the web server 136. The web server 136 provides web server software for operation with the communications network 122. Examples of web server software for use with the web server 136 include, but are not limited to, public domain web server software available from NCSA and Apache, or commercial packages available from Microsoft or Netscape. The web server 136 provides access to the Internet services 110 via the communications network 104. A user can access the Internet services 110 saved to the web server 126 via the communications network 104 using the computing system 106 as described above in connection with FIG. 1.

In addition to the web server 136, Internet services can be delivered utilizing other media. For example, banners can be managed by a third party that distributes and posts the banners in a predetermined manner. In another example, e-mail services created using the network 112 can be administered by a third party. In yet another example, financial transactions underlying services such as on-line stores are referred to a third party skilled in processing such transactions and coordinating the flow of financial information and assets between financial institutions such as banks.

As mentioned above, the router 128 also connects the network 112 to the communications network 104. In one embodiment, the communications network 104 is the Internet. Alternatively, the communications network 104 can be any network that supports accessing the Internet services 110 using a computing system 106.

Now referring to FIG. 3, a high-level overview block diagram of one possible embodiment of a system and method for generating Internet services is shown. The system and method for generating Internet services 110 is based on the relationship between a customer, service, and agency. The profile of the customer, service, and agency influence the uniqueness of the Internet service 110 generated using the system and method described.

In one embodiment, each default service offering 200 is associated with one or more agencies 202. Each default service offering 200 is a standard service having a predetermined format. Agencies 202 are groups or organizations that provide various sales channels for offering to a customer 201 customized

Internet services that are based on the default Internet offerings 200. For example, each agency 202 can be a third-party organization that markets Internet services to customers 201 via the telephone (not shown), the Internet, or in connection with other marketing services provided by each agency 202.

5 Each agency 202 defines attributes for the Internet services data it provides to customers 201. As explained in more detail herein, these attributes are automatically mapped to the default Internet service offering 200 to create customized Internet services. Examples of attributes that an agency 202 can choose to customize these service offerings include style, headers and footers, page
10 numbers, and other characteristics. This mapping operation is performed by the gathering/design module 205.

 In other possible embodiments, an agency 202 can also define pricing schemes and workflow steps, which are similarly mapped to the default Internet offerings 200 to customize pricing plans and production steps to meet the needs and
15 desires of individual agencies 202. As a result, the consistency and branding of the Internet services is enhanced. The relationship between the customer, service, and agency will be discussed in greater detail below in connection with FIG. 4.

 The system also includes a data gathering/design module 205 that is accessible to an Internet service designer 120 via the development server 119. In
20 one embodiment, the data gathering/design module 205 is a software application that is used to capture information about the customer 201 as well as specify the characteristics of the Internet service 110 being generated by the system. The data gathering/design module 205 may be resident on the Internet service designer's workstation 120 or on the development server 119.

25 The data gathering/design system 205 includes a service design subsystem 204 and an Internet generation subsystem 206. The service design subsystem 204 facilitates the configuration of the default service offering 200. As discussed above, the system and method for generating Internet services 110 is based on the relationship between the customer 201, default service offering 200, and
30 agency 202. Hence, the profile of the customer 201, default service offering 200, and agency 202 can be used to generate a distinct Internet service 110. The service design subsystem 204 also specifies the activities that should be taken to generate and customize the default service offering 200 as well as the order of completion for those activities. The service design subsystem 204 will be discussed below in
35 greater detail in connection with FIGS. 4.

 The data gathering/design module 205 also includes an Internet generation subsystem 206 that is configured to receive input from an Internet service designer 120. In one embodiment, the Internet generation subsystem 206 automates

the generation of activities specified by the service design subsystem 204 by directing one or more Internet service designers 120 through completion of each activity. The Internet generation subsystem 206 automatically moves the selected service offering 200 through all appropriate activities as specified in the service design subsystem 204. Accordingly, the Internet generation subsystem 206 bypasses those activities not required for generation of the selected service offering 200. As each activity specified in the service design subsystem 204 is completed, a status field can be loaded with information to indicate that the activity has been finished. In so doing, the Internet generation subsystem 206 can direct one or more Internet service designers 120 through each specified activity in the order that each was specified for completion.

The Internet service designer 120 further develops and generates an Internet service 110 based on the customer's 201 selected service offering 200. The data gathering/design module 205 allows the Internet service designer 120 to define the presentation layout for presenting and displaying information gathered relating to the customer 201 and the selected service offering 200. The Internet service designer 120 uses this information to develop the basic presentation layout of the web content 110 within the limitations set forth by the selected default Internet offerings 200 and permissible modifications requested by the customer. Within these limitations the Internet service designer 120 assigns various web elements to place and publish on the web content 110. The various components of the Internet service 110 design are saved to the production database 102. One possible embodiment of the structure of the database 102 for generating and regenerating the web contents 110 will be discussed in greater detail below in connection with FIGS 7-10.

The Internet service designer 120 also works with the customer 201 to gather demographic information about the customer, such as the customer name, the business name and address, the business email address, and other related information. The Internet service designer 120 also gathers customer-defined information related to the Internet service 110 being generated by the system, such as business slogans, product/service offers, keywords used to describe the products/services being offered, and other related information. The information gathered by the Internet service designer 120 is saved to the production database 102. Thus, the information gathered is saved only once to the database 102. As a result, the redundancy of gathering and storing data related to the generation of the Internet service 110 is reduced. Furthermore, the amount of time and effort required to generate the Internet service 110 is also reduced.

After the Internet generation subsystem 206 has completed processing, the Internet service 110 may be automatically generated using the production database 102. The production database 102 dynamically maps the information captured using the data gathering module 205 with the presentation
5 layout for presenting and displaying that information as defined in the Internet generation subsystem 206. After the Internet services 110 have been generated, they can be published to the World Wide Web.

As mentioned above, the information that is displayed in connection with the Internet services 110 is entered and saved once in the database 102.
10 Accordingly, the amount of effort required to generate the Internet services 110 is minimized. Likewise, the amount of storage capacity required to store the Internet services 110 is also minimized. Furthermore, in the event the Internet services 110 are damaged or destroyed, the Internet services 110 can be regenerated easily and efficiently. One possible embodiment of the structure of the database 102 for
15 generating and regenerating the Internet services 110 is discussed in greater detail below in connection with FIGS. 7-10.

A more detailed block diagram of the system and method for automatically generating Internet services is shown in FIG. 4. As discussed above, the agency 202 is associated with one or more default service offerings 200 that are
20 available to customers. The service design subsystem 204 facilitates the configuration or customization of the default service offering 200. As discussed above, the system and method for generating Internet services 110 is based on the relationship between the customer 201, the agency 202, and the default service offerings 200 associated with the agency. The profiles of each help to configure a
25 unique and distinct service 110.

In one embodiment, mapping/indexing module 212 maps the selected default service offering 200 with the agency 202. In another embodiment, the mapping/indexing module 212 generates the various components that define the processes and the information used to complete generation of the selected default
30 service offerings 200. In one embodiment, the mapping/indexing module 212 defines the Internet service attributes 214, pricing 216, and workflow definition 218 for selected default service offering 200.

As shown in FIG. 5A, the attributes 214 define attributes classes 215A-215D that specify the physical characteristics and the components mapped to
35 the default service offering 200 to generate a customized service for offering to customers 201. For example, the attributes 214 may define whether the customized service will be registered with a search engine 215A. Alternatively, the attributes 214 may define whether the customized service based on the defaults will include

banners **215B**, promotional elements **215C**, or other similar components **215D**. Moreover, each attribute class **215A–215D** may contain information relevant to its generation. For example, the customer **201** may specify that a unique and different company logo be used with the banners **215B**.

5 The pricing **216** establishes the price of the customized service that is charged to the customer **201**. In one embodiment, the pricing **216** is determined based on the billing method **217A** and the billing frequency **217B** associated with the agency **202** and the selected service as shown in FIG **5B**. The billing method **217** defines how the customer **201** will pay for the service **110**. For example, the
10 customer can specify that payments will be made using cash, check, via a third party, or using a similar payment method. The billing frequency **217B** defines the schedule for when payments from the customer **201** are due. Based on the combination of billing method **217A** and billing frequency **217B**, a unique price **216** can be determined for the selected service offering **200**.

15 The workflow definition **218** defines the generation method used to generate a customized service from a given Internet service offering **200**. For example, the generation method defines the standard activities that are typically completed in order to generate the selected customized service offering **200**. For example, the standard activities that are typically completed when generating an
20 Internet service, such as a web site, might include recording the sale associated with the web site, designing the web site, performing quality control analysis of the web site, publishing the web site to the World Wide Web, and printing and sending notification to the customer. These activities are completed by the Internet service designer **120** who accesses the data gathering/design module **205** via the Internet
25 generation subsystem **206**.

 The workflow definition **218** is different for each Internet service offering **200** and is based on the relationship between the Internet service offering **200** and the agency **202**. The activities defined in the workflow definition **218** is specified by a given agency **202** as shown in FIG. **5C** and can vary on a case by case
30 basis. For example, a single agency **202** can have associated with it several default service offerings **200A–200C** that can be modified to generate an Internet service **110**. For each Internet service, the list of activities to be completed by the Internet service designer **120** varies.

 The attributes **214**, pricing **216**, and workflow definition **218** combine
35 to create a unique or customized service offering **220**, which is an Internet service available to customers. In most cases, the creation of the customized Internet service offering **220** does not occur each time a customer **201** requests an Internet service offering **200** from an agency **202**. Accordingly, the processing required for

generating the Internet service 110 is reduced. Moreover, once the customer 201 selects a service offering 220 that is available through an agency 202, approximately 30–70% of the steps necessary for generation of the Internet service 110 have been completed. Thus, the generation of Internet services using the system improves the efficiency of the overall development process.

Referring again to FIG. 4, after a customer selects an Internet service 220, the Internet generation subsystem 206 automates the tasks specified by the service design subsystem 204 and generates the Internet services 110. Examples of the Internet services 110 that are generated by the generation subsystem 206 include, but are not limited to, a web site 226, a shopping cart 228, an on-line Internet traffic promotion and maximization service 230 for web pages and sites hosted on the web server 136, a payment gateway 232, promotional services 234, and other related or similar Internet services 236.

The Internet generation subsystem 206 is capable of receiving customer input 222 to further customize the attributes 214, pricing 216, and workflow definition 218 associated with the unique Internet service offering 200. The customer input 222 is communicated through the Internet service designer 120. For example, the customer 201 can request that the unique Internet service offering 220 include attributes 214 that may not be associated with the agency 202. Similarly, the customer 201 can specify that the standard activities listed in the workflow definition 218 exclude standard activities or include non-standard activities.

Furthermore, the service generation subsystem 206 also captures information about the customer 201 as discussed above. For example, the service generation subsystem 206 captures demographic information, such as the customer name, the business name and address, the business e-mail address, and other related information. Similarly, the Internet generation subsystem 206 also captures customer-defined content that is related to the Internet service being generated by the system. Examples of the customer-defined content include, but are not limited to, business slogans, product/service offers, keywords used to describe the products/services being offered, and other related information.

As discussed above, the information gathered by the Internet service designer 120 is saved to the production database 208. Thus, the information gathered is saved only once to the database 208. As a result, the redundancy of repeatedly gathering the same data related to generation of the Internet service 110 is reduced. Furthermore, the amount of time and effort required to generate the Internet service 110 is also reduced.

The workflow implementation 224 receives the customer input 222 and coordinates generation of the requested Internet service using one or more Internet service designers 120. The workflow implementation 224 automatically processes the generation of the Internet services 110 by coordinating the completion of the appropriate activities listed in the workflow definition 218. As discussed above, the workflow definition 218 specifies the standard activities that are typically completed when generating the Internet service 110. The workflow definition 218 may be different for individual customized services 220 and is based on the relationship between the default service offering 200 and the agency 202. Thus, the activities defined in the work flow definition 218 for a given default service offering 200 vary depending on the agency 202 and may vary between the customized Internet services 220 offered by any given agency 202. Moreover, as discussed above, the customer 201 can modify the workflow definition 218 by specifying that the standard activities listed either exclude standard activities or include non-standard activities.

During processing, the workflow implementation 224 excludes activities that are not required and moves through each activity in the order specified in the workflow definition 218. In one embodiment, the activities listed are assigned and completed in sequence. In an alternative embodiment, the activities listed in the workflow definition 218 can be performed asynchronously while other activities are being completed. After completion of the workflow implementation 224, the Internet service 110 can be generated using the production database 208 and may be published to the World Wide Web.

The activities related to generation of Internet service 110 are executed in steps such as recording a sale of a customized Internet service 220, production, quality control, printing, publishing, etc. The steps executed when generating the Internet service 110 can depend on a variety of factors including the type of Internet service being generated, requirements especially by the agency 202, and instructions received from the customer 201. Each step has a status indicating whether it has been executed. In one possible embodiment, certain steps must be performed sequentially. In this situation, a change in the status of one step causes the generation process to index or move to the next subsequent step. When execution or fulfillment of one step requires certain other steps to be complete, the one step will not be executed until the status of the certain other steps are changed. The status is indicated in a database field of the production database 102 that identifies what work has been performed.

Now referring to FIG. 6, a block diagram illustrating the workflow implementation process associated with the various Internet services 110 is shown.

As discussed above, the workflow implementation 224 automatically processes the generation of the Internet services 110 by coordinating with one or more Internet service designers the completion of the appropriate activities listed in the workflow definition 218.

5 The workflow implementation process illustrated in FIG. 6 shows the workflow implementation process as a series of activities 252 and definitions 254 associated with a given Internet service 110. In order to generate the Internet service, one or more Internet service designers 120 completes the activities 252 and the definitions 254 associated with the Internet service 110. The activities 252 lists
10 the processes to be completed in order to generate the Internet service 110. For example, the activities 252 can include, but are not limited to, design of the service, quality control of the service, billing the customer for the service, and other similar activities. The definitions 254 set the characteristics of the Internet service 110, such as the style associated with the presentation of the web content.

15 Each arrangement of activity definitions 252 and processes 254 are associated with a given Internet service 110. For example, the web site 226 has activity definitions 252 and processes 254 that form the workflow 256 that is to be complete in order to generate the web site 226. The arrangement of activity definitions 252 and processes 254 are based on the Internet service 110 and the
20 activities listed in the workflow definition 218. As a result, the workflow implementation 224 is not dependent upon specific resource assignments. Instead, the workflow process automatically facilitates the generation of the Internet services 110 by coordinating with one or more Internet service designers 120 the completion of the appropriate activities listed in the workflow definition 218. Furthermore,
25 there is no manual intervention required in order to assign a certain activity 252 or definition 254 for completion by an Internet service designer 120.

Referring to FIG. 7, a block diagram illustrating a design activity for creating an Internet service 110 is shown. FIG. 7 also illustrates the database architecture and the relationships between the various components of the production
30 database 208 used to automatically generate and publish the Internet services 110 in accordance with the present invention.

As shown in FIG. 7, the Internet service 110 automatically generated from the production database 208 is a web site 354. However, it will be understood by those skilled in the art that a similar database architecture can be used to create
35 any of the Internet services 110 already discussed above.

In this embodiment, the customer 201 is able to select the navigation methods 350 used in the web site 354 as well as the style 352 for the web site 354. The navigation methods 350 establish how the user who accesses the web site will

navigate throughout the web site. The style 352 establishes the theme or look and feel for the entire web site 354. In addition, each unique business has a standard industry code ("SIC") that is used to designate the business classification associated with the customer's business. Styles are associated with and classified under SIC codes aligning default themes that are industry or business specific. The system will automatically select pictures and other elements for the web site 354 based on the SIC code. Thus, each web page 358 on the web site 354 will have a consistent look and feel specifically related to the selected industry.

The navigation 350 and the style 352 are integrated into the overall design of the web site 354. The web pages 358 are documents that are published on the World Wide Web and are identified by a unique uniform resource locator ("URL"). Typically, each web page 358 is produced in a computing language such as hypertext markup language ("HTML") or eXtensible markup language ("XML").

Furthermore, a mapping table 360 is associated with each web page 358. Each mapping table 360 relates predetermined objects to a given page structure. Each page 358 is in turn created using this relationship. In this manner, the mapping table 360 defines a basic presentation layout where multiple web objects 362 can be placed on the web page 358. In one embodiment, the web objects 362 define the source code that identify the page elements and content that are placed on the web page 358. Web content 366 can then be associated with each web object 362 in order to populate the web objects 362 on the web page 358.

Moreover, the mapping table 360 is also associated with a page structure 364 that defines the source code for the presentation layout of the web page 358. In one embodiment, the page structure 364 has source code in HTML for publishing each web page 358 to the World Wide Web. The source code for the page structure 364 is stored on the production database 208. The page structure 364 source code includes placeholders (not shown) for the web objects 362 which are discussed below in conjunction with FIG. 8.

Now referring to FIG. 8, a more detailed diagram of the database architecture for automatically generating and publishing web content 110 is shown. As discussed above, one or more web objects 362 is associated with the web page mapping table 360. Conversely, a single page structure 364 is associated with the web page template 360. The web objects 362 and the page structure 364 are dynamically mapped together in order to create the source HTML for each web page 358. The source HTML document is used to publish the web page to the World Wide Web. The mapping table 360 processes the page structure 364 in order to build the source HTML for the web page 358.

As discussed above, the page structure 364 has source code for publishing the web page 358 stored on the production database 208. The source code for the page structure 364 contains placeholders 372 for the web objects 362. The web objects 362 are defined once and can be used in any combination on any web page 358 that is created.

The web objects 362 contain placeholders 372 that can be populated with information from the database. The placeholders 372 can be data placeholders 374, style placeholders 376, or content placeholders 378. Data placeholders 374 are data elements about the customer 201 gathered by the Internet service designer 120 during the initial setup of the Internet service. For example, the data placeholders 374 can include basic information about the customer 201, such as the customer's name, business name, and other related information. The style placeholders 376 cross-reference various design elements that are defined by the selected styles. For example, the style placeholders 376 can cross-reference the size and color of text appearing on the web page 358. The content placeholders 378 cross-reference customer-defined content stored on the production database 208 as discussed above.

As shown in FIG. 9, a block diagram illustrating the dynamic mapping process 360 used to map the web objects 362 with the page structure 364 is shown. As discussed above, the page structure 364 defines source HTML 386 that is used to generate the web page 358. The source HTML 386 contains placeholders 380 embedded within the page structure HTML 386 that provide cross-references to web objects 362. In one embodiment, the web objects 362 define the source code that identify the page elements and content that are placed on the web page 358. Additionally, the web objects 362 receive the content 366 which is then placed in the page structure 364. Alternatively, the web object 362 can cross-reference additional placeholders 384. The placeholders 384 can include style placeholder, data placeholders, or content placeholders.

As shown in FIG. 10A, an example of HTML source code used to create a web page 358 is shown. The page structure 364 is shown residing on the production database 208 having source HTML 386 with embedded placeholders 392, 394, and 396. As discussed above, the placeholders 372 embedded in the HTML 386 for the page structure 364 can either be data placeholders 374, style placeholders 376, or content placeholders 378. The page structure 364 and the web objects 362 are reusable in many combinations. Thus, the characteristics of a web object 362 can be uniquely defined each time it is used in the page structure 364.

FIG. 10B illustrates an example of the web object source code 398 for the web objects 362 that are cross-referenced by the data placeholder 392 shown in FIG. 10A. The data placeholders 399 further cross-reference the customer's

business address that was entered into the data gathering/design module 205 by the Internet service designer 120. The production database 208 dynamically maps the information to create a source document that can be published to the World Wide Web.

5 All of the information needed to generate the web content 110 is saved to the production database, including the customer-defined content as well as characteristics of the Internet service 110 specified by the Internet service designer 120 within the Internet generation subsystem 206. As a result, no external files need to be saved or created outside of the files located on the web server 136. In the event
10 that data is lost from the web server 136, the web content can be regenerated from the production database 208 with minimal effort.

FIGS. 11–16 are flow charts illustrating the logic followed by an Internet service designer 120 when utilizing the system and method of generating an Internet service according to the present invention. Referring first to FIG. 11, the
15 sale of the Internet service is initially recorded 400. When the sale is recorded through an agency 402, the system determines the Internet services available 404 for the associated agency. The Internet services available 404 are presented to the user and the user is allowed to select the Internet service 406 that meets the customer's needs. The method determines the base attributes for the Internet service 410.

20 The method determines if the Internet service as it is offered by the agency uses the base attributes as defined for the base Internet service. Otherwise, if the Internet service, as it is offered by the agency, does not use the base attributes as defined for the base Internet service, the method determines the custom attribute as defined for the customized Internet service established in the service design
25 subsystem. The system will continue by determining the price for the Internet service. As discussed above, the price is determined based on the Internet service, the agency, and the billing method and billing frequency of payment selected by the customer.

After resolving the attributes and/or pricing of the Internet service,
30 the customer is prompted to provide demographic information 418 about themselves, such as their name, address, and other similar information. Similarly, the customer can provide information that may be published with the Internet service 420. Moreover, the customer can also customize the attributes of the Internet service 422.

35 The system also allows the customer to customize the billing options 424. As discussed earlier, the price of the Internet services is determined based upon the service, agency, and the billing method 426 and the billing frequency 428. The customer can modify the billing method 426 used to pay for the Internet service. For

example, the customer can select to pay for the Internet service using a credit card. Alternatively, the customer can modify the billing frequency 428 for making payments. By varying these factors, the price of the Internet service may be changed. After selection of the billing method 426 and the billing frequency 428,
5 the price for the Internet service 430 is determined. In addition to the price for the Internet service 430, any additional setup charges for the Internet service 432 is also determined.

The system proceeds by gathering any miscellaneous information 434 that may be related to the Internet service. Once all of the information has been
10 gathered 434 related to the Internet service, the workflow definition 436 as defined in the services design subsystem 204 is referenced. If the base workflow definition 436 is not used, the customized workflow 438 is implemented by the service generation subsystem. The activity that is currently being done can be a new process or it can be a change of status 440. If it is an update to the status of the Internet
15 service 442, the change is noted in the database and saved to the database 444. At this point, the workflow is saved and the Internet service is moved to the next queue 446.

FIGS. 15 and 16 illustrates the logic followed by an Internet service designer when utilizing the system and method to automatically generate and publish
20 a web site. It will be understood by one skilled in the art that the process described is also applicable to other Internet services such as a shopping cart, promotional services or other similar Internet services. The web service designer 120 first selects a navigation scheme 448 for the web site. If no navigation scheme is selected, a default navigation scheme is set up and determined for use with the web site. The
25 web service designer 120 next is able to select a style 450 which is associated with the web site. If no style is selected by the web service designer 120, a default style is automatically used.

After selecting the navigation scheme 448 and the style 450, an Internet service designer 120 selects a presentation layout, which has a
30 predetermined page structure 456. The page structure 456 is defined by source HTML that contains placeholders for web objects 458. A mapping table maps the web objects 458, and any other predetermined information or content, to the page structure 456 to create the web page.

If the web service designer does not select a presentation layout, a
35 custom map 464 and custom layout 466 must be created. In order to create the custom map 464, the web service designer 120 supplies custom HTML code for the custom layout 466. After creation of the custom code, the Internet service designer is able to provide input 468 which can then be incorporated into the code for the

presentation layout 470. After creation of the custom code, the Internet service designer is able to preview 462 the web page that has been created. If the user accepts the web page, the system prompts the Internet service designer to determine whether or not they are finished 474. If the web site is not finished, the Internet
5 service designer can add an additional web page 452. Alternatively, if the web site is finished, the Internet service designer can save the information that will be subsequently used to generate the web site 476 and move to the next queue 478.

The various embodiments described above are provided by way of illustration only and should not be construed to limit the invention. Those skilled in
10 the art will readily recognize the various modifications and changes which may be made to the present invention without strictly following the exemplary embodiments illustrated and described herein, and without departing from the true spirit and scope of the present invention, which is set forth in the following claims.

THE CLAIMED INVENTION IS:

1. A computerized method for automatically generating customized Internet services available through an agency, wherein the agency defines a sales channel for offering at least one Internet service to a customer, the method comprising:
 - 5 selecting an Internet service associated with the agency, the Internet service having default attributes that define the characteristics of the Internet service relevant to the agency;
 - mapping the selected Internet service with the agency to provide a customized work flow definition that lists the activities used to
 - 10 generate the Internet service; and
 - managing the work flow activities listed in the work flow definition to generate the customized Internet service.
2. The method of claim 1, wherein the method further comprises the step of
- 15 receiving user input to further customize the attributes of the Internet service associated with the agency according to the needs of the user.
3. The method of claim 1, wherein the method further comprises the step of capturing user defined content for publication with the Internet service, wherein the
- 20 user defined content includes demographic information about the user.
4. The method of claim 1, wherein mapping the selected Internet service with the agency further provides the cost associated with the Internet service, wherein the cost is automatically determined based on the method and frequency.
- 25 5. The method of claim 1, wherein each agency is categorized according to a business classification that defines a default style for each Internet service available through the agency, wherein the default style is configurable according to the needs of the customer.
- 30 6. The method of claim 1, wherein the work flow activities listed in the work flow definition include recording the sale associated with the Internet service, designing the Internet service, providing quality control for the Internet service, and publishing the Internet service.
- 35 7. The method of claim 6, wherein each of the work flow activities listed in the work flow definition is performed in sequence according to the a predetermined when a checkpoint has occurred.

8. The method of claim 1, wherein the Internet services available through the agency include a web site.
9. The method of claim 1, wherein the Internet services available through the agency include a shopping cart.
10. A computerized method for automatically generating and publishing an Internet service from a database, the method comprising:
selecting a style for the Internet service that defines the overall appearance of the Internet service;
defining a static presentation layout for the Internet service consistent with the selected style, the static presentation layout having source code electronically stored on the database with embedded placeholders associated with at least one web object, wherein each web object defines an element for the Internet service and has source code with embedded object placeholders associated with content for the web object; and
dynamically mapping the content associated with each object placeholder embedded within the web object to create the source code for publishing the Internet service.
11. The method of claim 10, wherein the embedded placeholders associated with each web object includes at least one data placeholder associated with information retrieved from the customer during setup.
12. The method of claim 10, wherein the embedded placeholders associated with each web object includes at least one style placeholder that define the design elements associated with the selected style.
13. The method of claim 10, wherein the method further includes the step of capturing user defined content for publication with the Internet service.
14. The method of claim 13, wherein the embedded placeholders associated with each web object includes at least one content placeholder associated with the user defined content captured for publication with the Internet service.
15. The method of claim 10, wherein the source code for publishing the Internet service is Hypertext Markup Language.

16. The method of claim 10, wherein the source code for publishing the Internet service is eXtensible Markup Language.
17. The method of claim 10, wherein the Internet service includes a web site.
18. The method of claim 10, wherein the Internet service includes a shopping cart.
19. An electronic database for automatically generating and publishing a web site, the database comprising:
- a style associated with the web site that defines the overall appearance of the web site;
 - at least one web page associated with the web site, each web page having a static page structure consistent with the style, the static presentation layout having source code electronically stored in the database having embedded placeholders associated with at least one web object, wherein each web object defines an element located on the web page, the web object having source code with embedded object placeholders associated with content for the web object; and
 - an index for dynamically mapping the content associated with each object placeholder embedded within the web object to create the source code for publishing the Internet service.
20. The database of claim 19, wherein the embedded placeholders associated with each web object includes at least one data placeholder associated with information retrieved from the customer during setup.
21. The database of claim 19, wherein the embedded placeholders associated with each web object includes at least one style placeholder that define the design elements associated with the selected style.
22. The database of claim 19, wherein the database captures user defined content for publication with the web site.
23. The method of claim 22, wherein the embedded placeholders associated with each web object includes at least one content placeholder associated with the user defined content captured for publication with the web site.

24. The database of claim 19, wherein the source code for publishing the web site is Hypertext Markup Language.
25. The database of claim 19, wherein the source code for publishing the web site is eXtensible Markup Language.
26. A computerized method for automatically generating customized Internet services available through an agency, the method comprising:
providing at least one default service;
providing a plurality of attributes; and
automatically mapping predetermined attributes selected from the plurality of attributes with the default service, thereby creating a customized Internet service.
27. The computerized method of claim 26 further comprising:
providing a plurality of pricing characteristics; and
automatically mapping predetermined pricing characteristics selected from the plurality of pricing characteristics with the default service.
28. The computerized method of claim 27 further comprising:
providing a plurality of workflow activities; and
automatically mapping predetermined workflow activities selected from the plurality of workflow activities with the default service.
29. A computerized method of generating a web page for posting on the Internet, the method comprising:
providing a page structure;
providing a plurality of objects, each object relating to content used to form the web page; and
mapping the content with the page structure, thereby creating a web page.
30. The computerized method of claim 29 further comprising storing a single copy of the web page.
31. The computerized method of claim 30 further comprising storing copies of the page structures and the plurality of objects.

32. The computerized method of claim 31 further comprising repeating the step of mapping the content with the page structure to recreate the web page.

5 33. The computerized method of claim 32 wherein repeating the step of mapping the content with the page structure to recreate the web page is performed when an event happens to the web page, the event being selected from the group consisting essentially of: the web page being erased or the web page being corrupted.

10 34. The computerized method of claim 29 wherein:
each web page is formed with a page structure and content, the content including web objects; and
the step of mapping the content with the page structure is executed by referencing the content to the page structure in a mapping table.

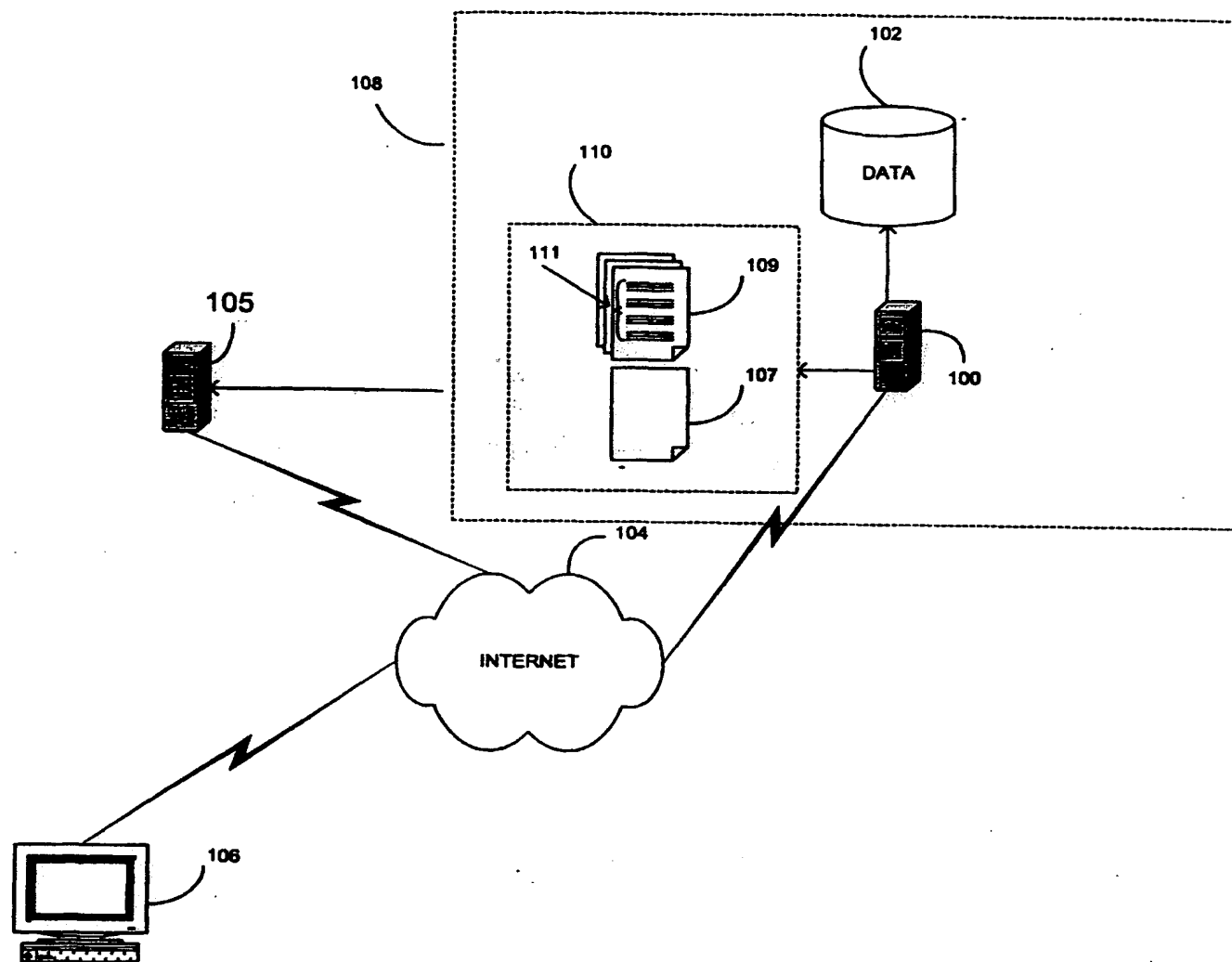


FIG. 1

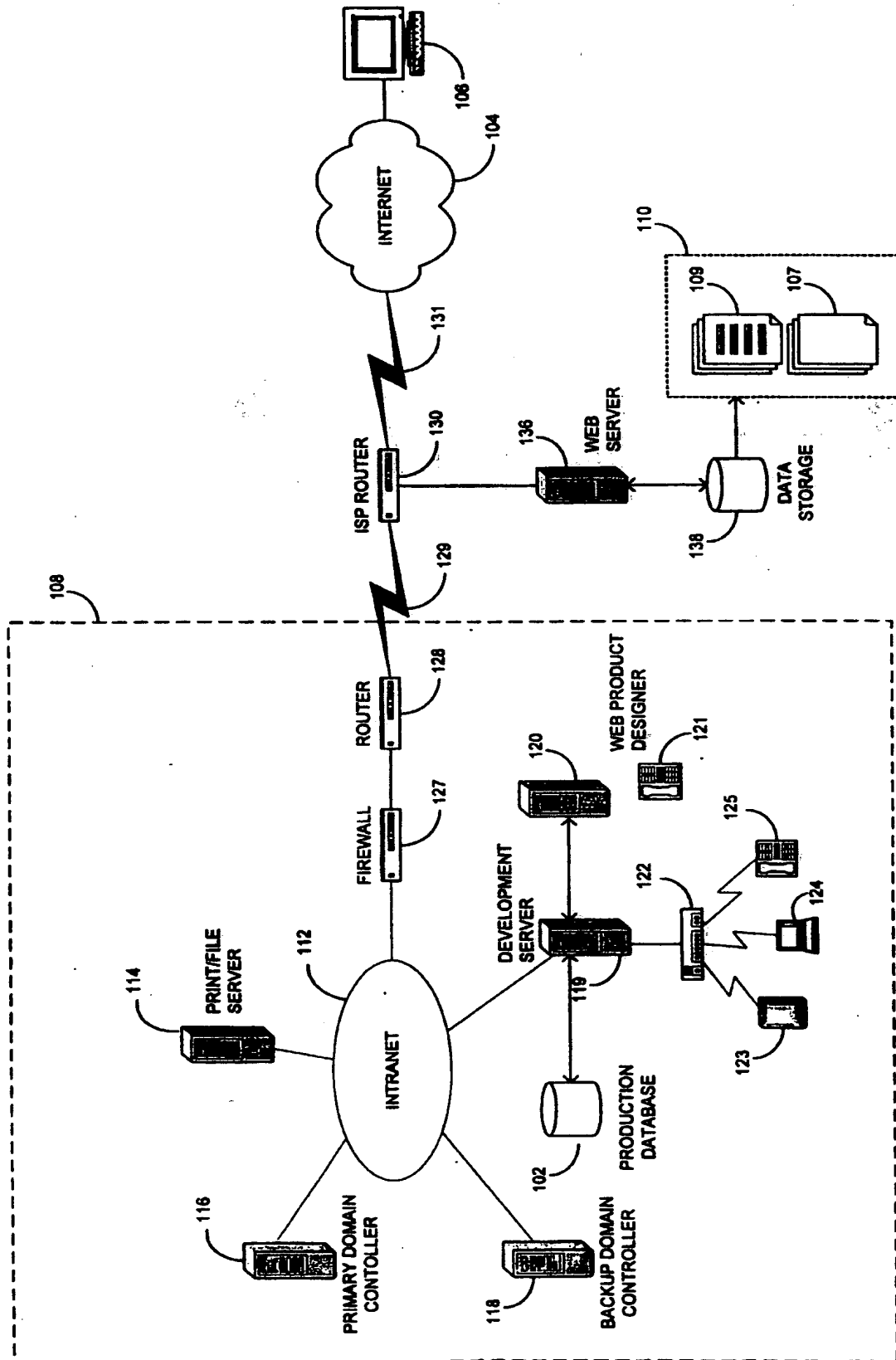


FIG. 2

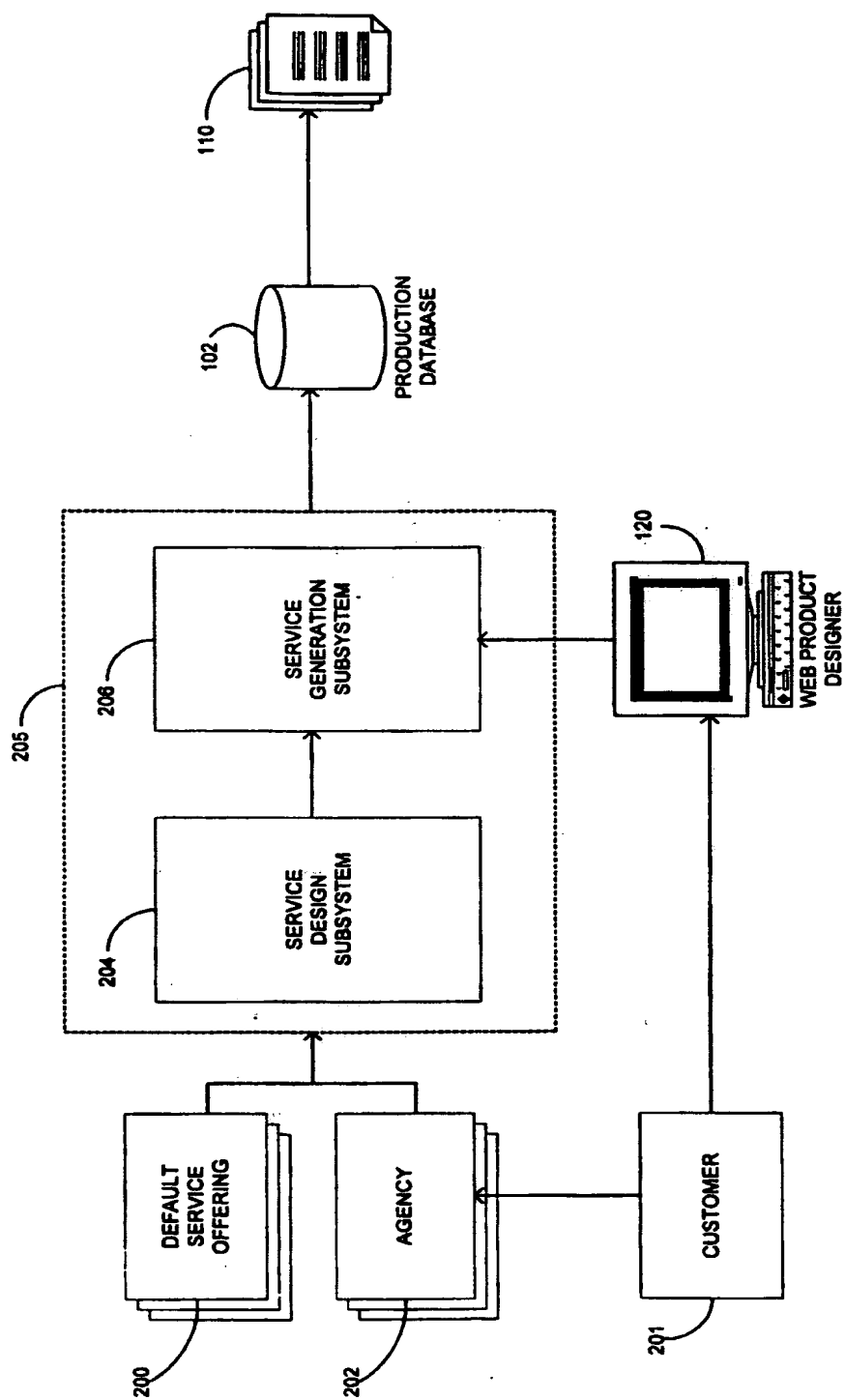


FIG. 3

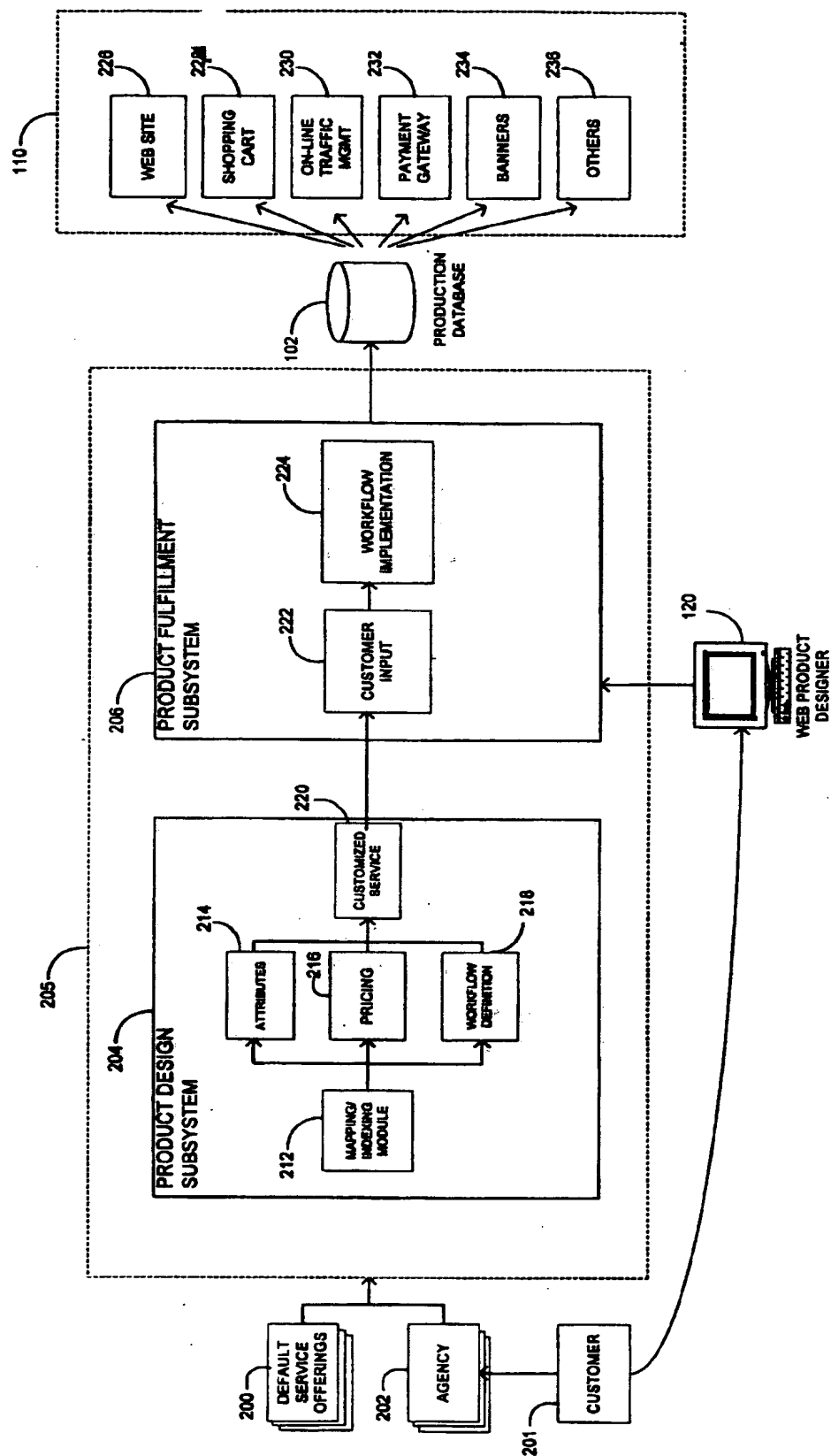


FIG. 4

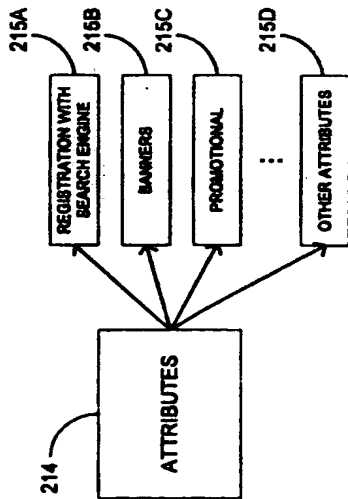


FIG. 5A

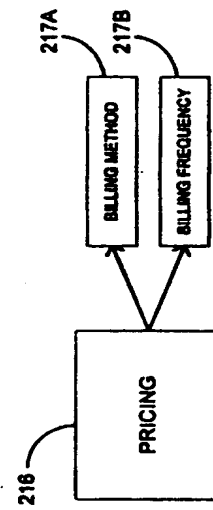


FIG. 5B

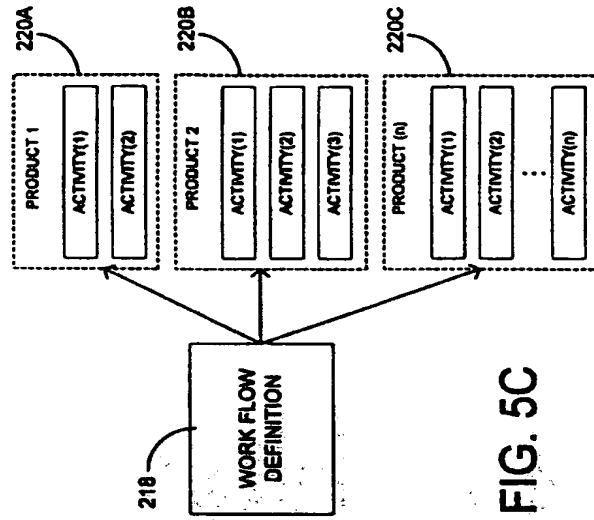


FIG. 5C

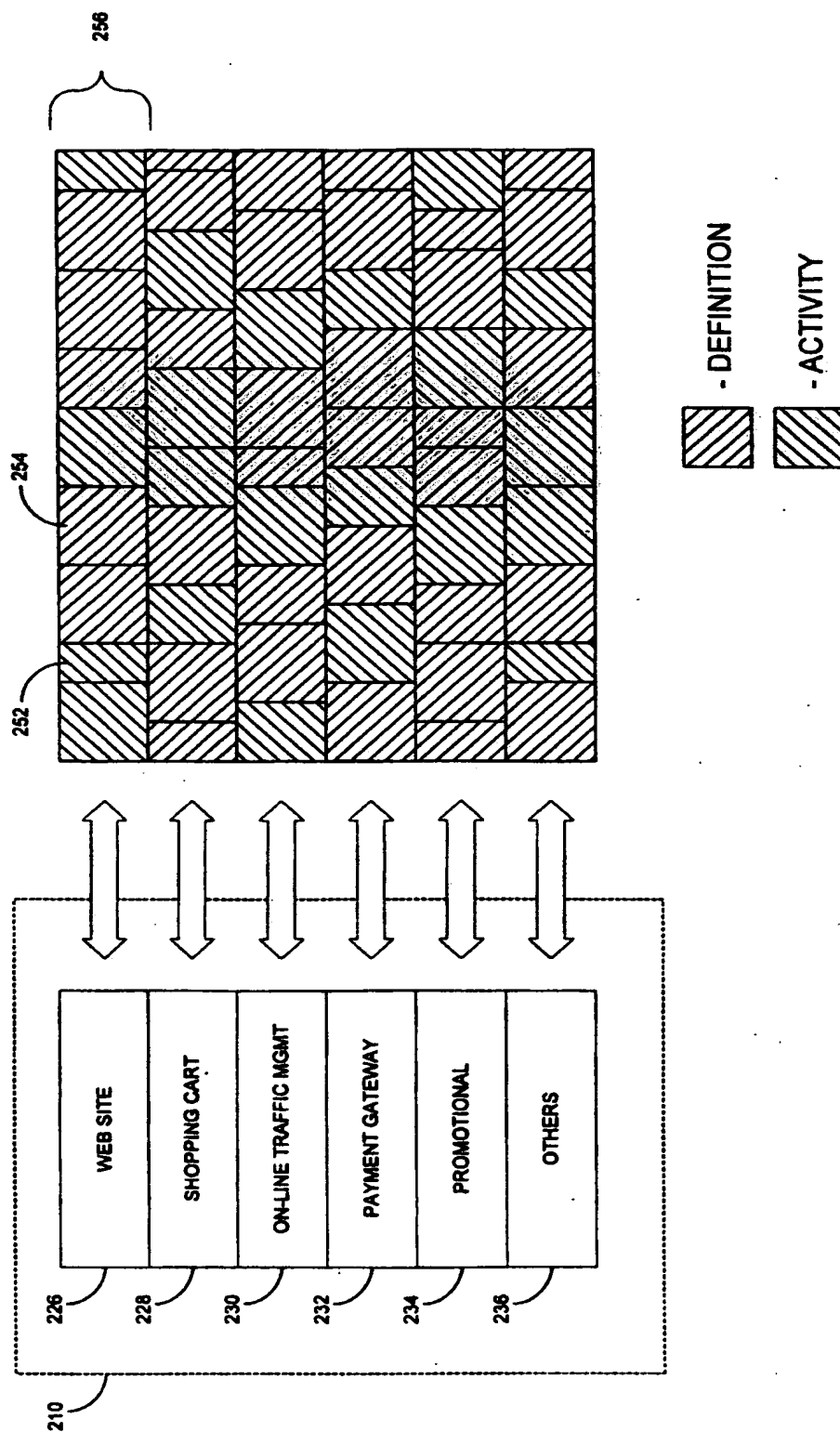


FIG. 6

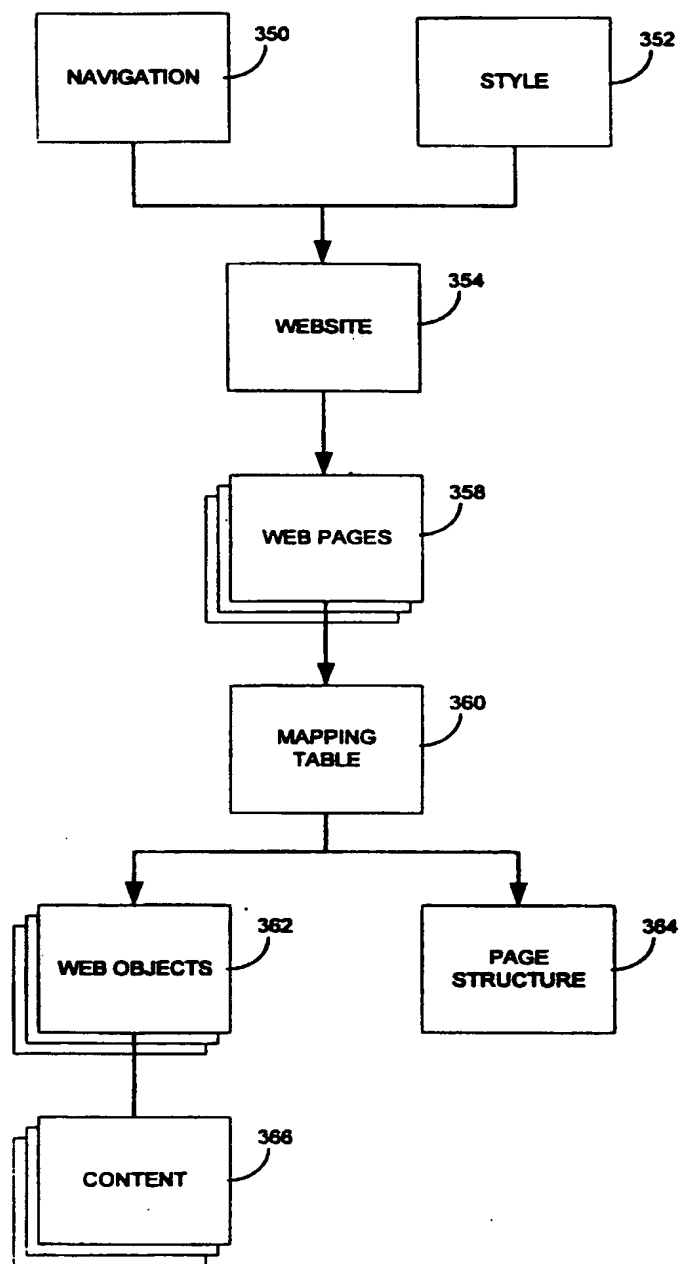


FIG. 7

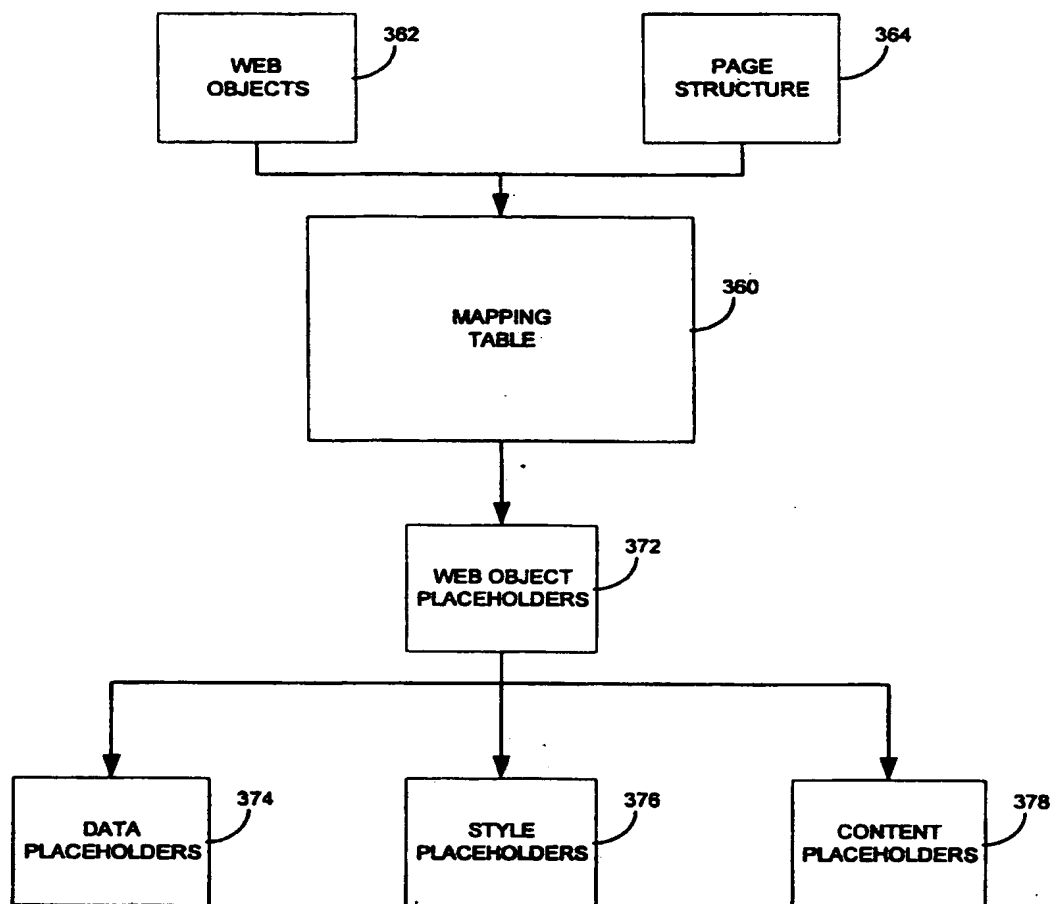


FIG. 8

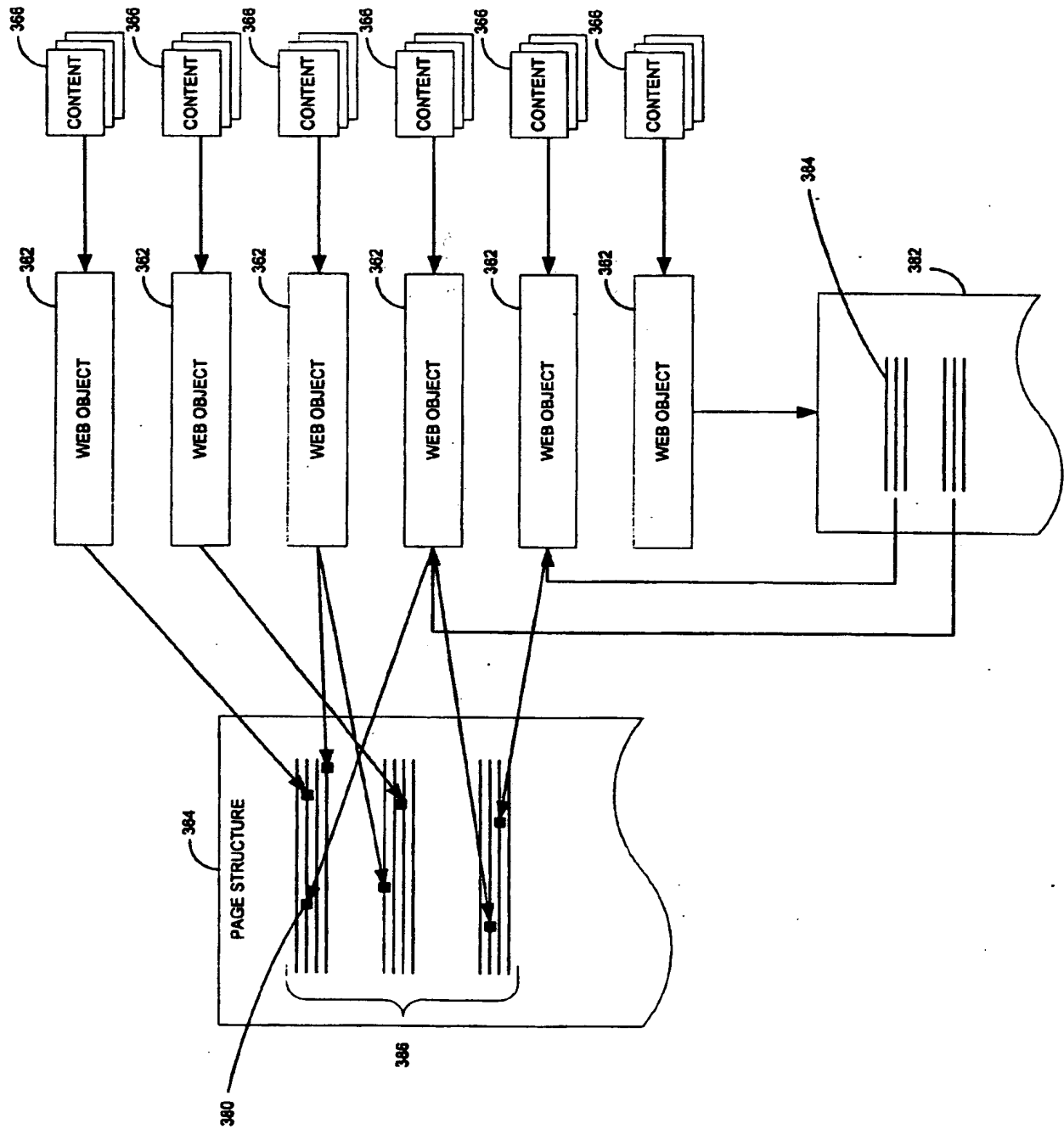


FIG. 9

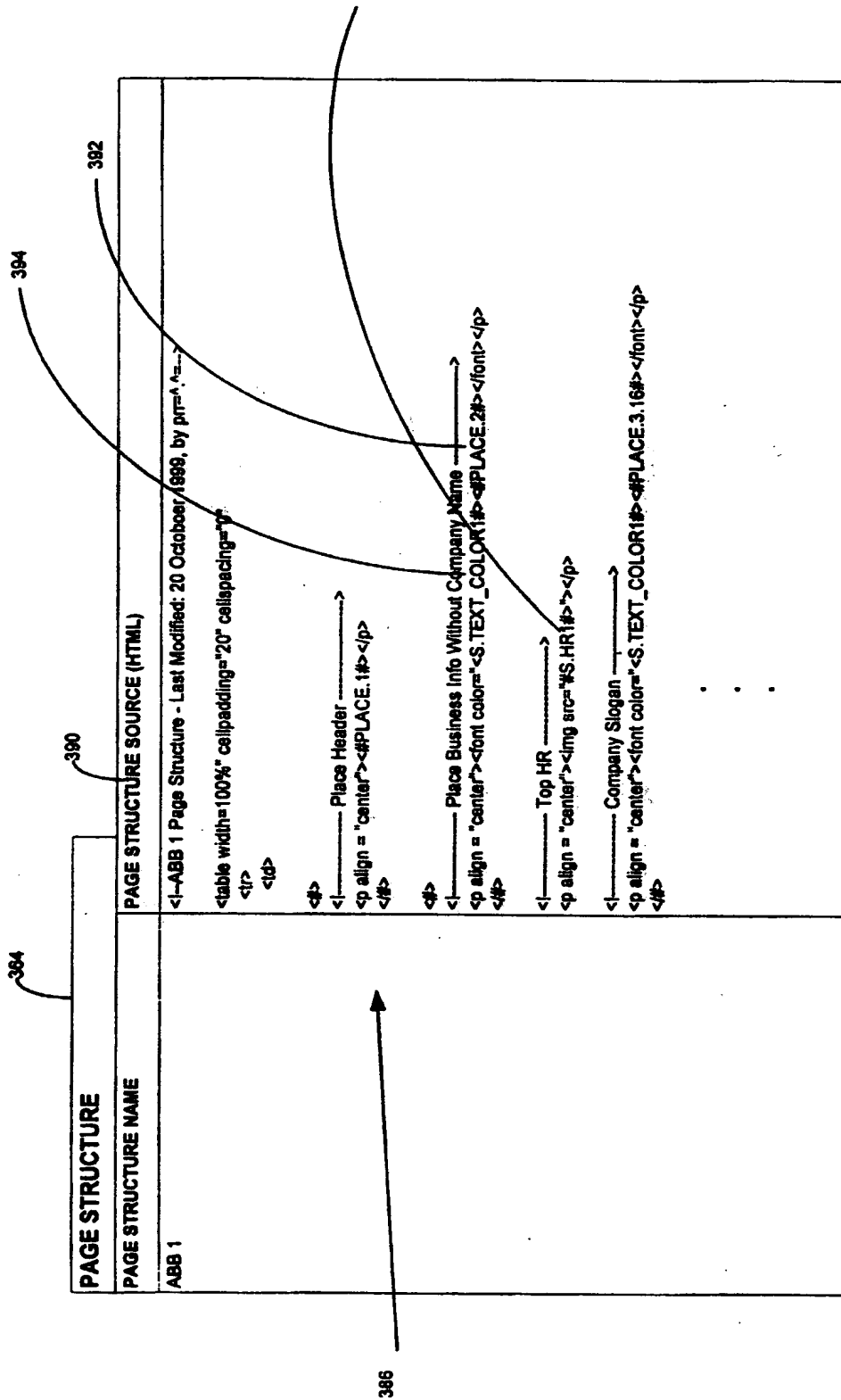


FIG. 10A

WEB OBJECT	WEB OBJECT SOURCE (HTML)
<p>•</p> <p>•</p> <p>•</p>	<p>•</p> <p>•</p> <p>•</p>
<p><PLACE.2#> = Business Info - No Co Name</p>	<p> <#><#D.ADDR1#><#> <#>
<#D.ADDR2#><#> <#>
<#D.CITY#>, <#D.STATE#><#D.ZIP#><#> <#>
Toll-Free: <#D.TOLL_FREE#><#> <#>
Phone: <#D.PHONE#><#> <#>
Fax: <#D.FAX#><#> <#>
Email: <a href="mailto:<#D.EMAIL#>"><#D.EMAIL#><#> <#>
Web: <a href="<#D.COMPANY_URL#>"><#D.COMPANY_URL#><#> <#>
<#D.ADDTL_INFO#><#> </p>
<p>•</p> <p>•</p> <p>•</p>	<p>•</p> <p>•</p> <p>•</p>

FIG. 10B

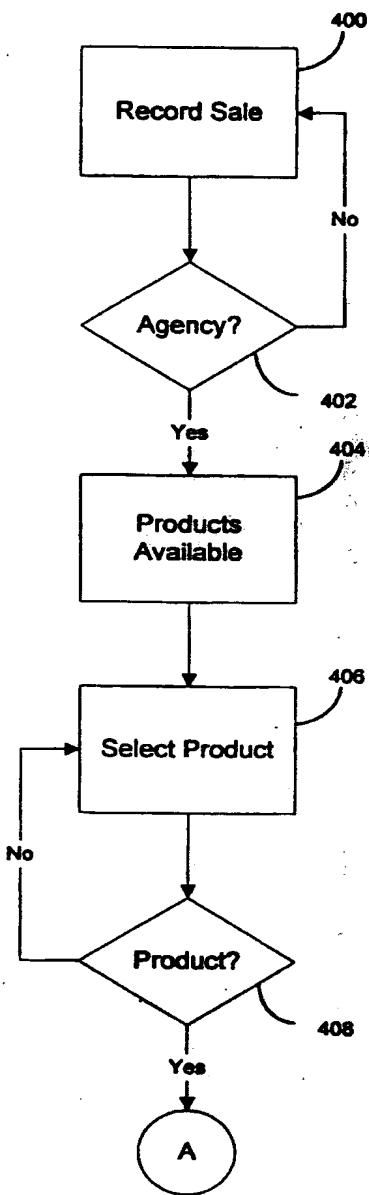


FIG. 11

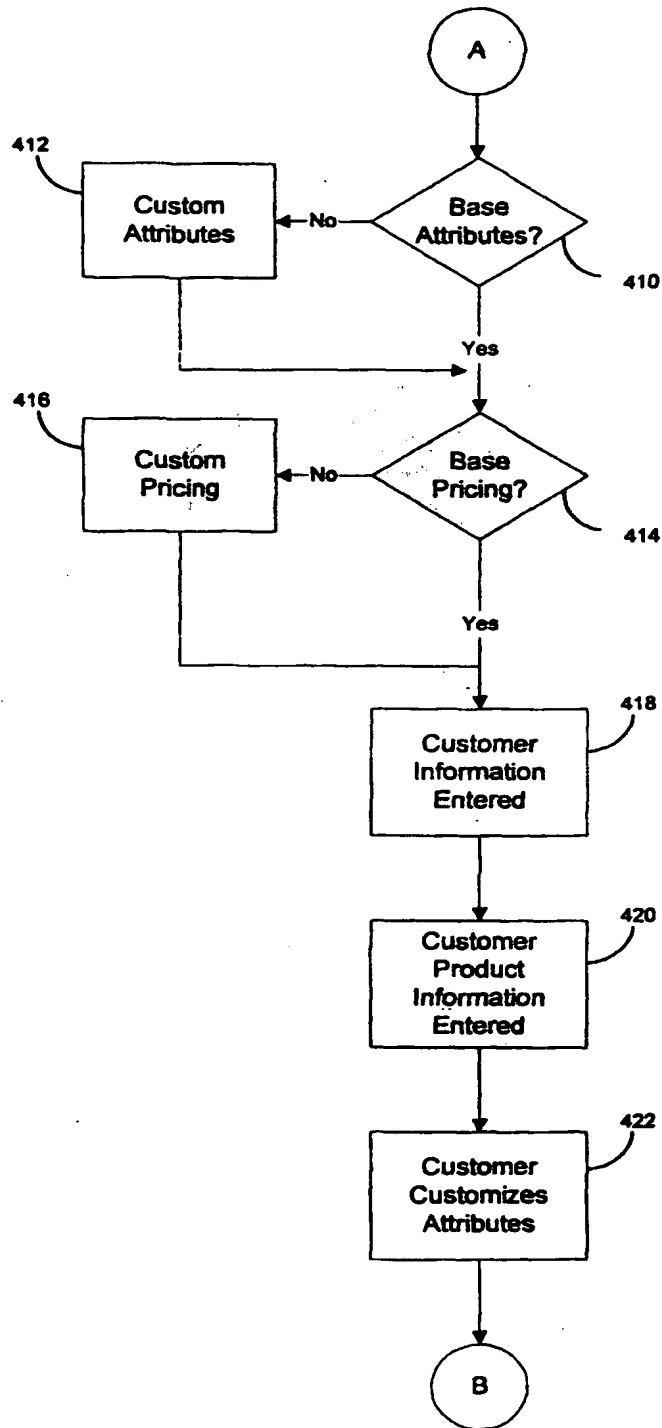


FIG. 12

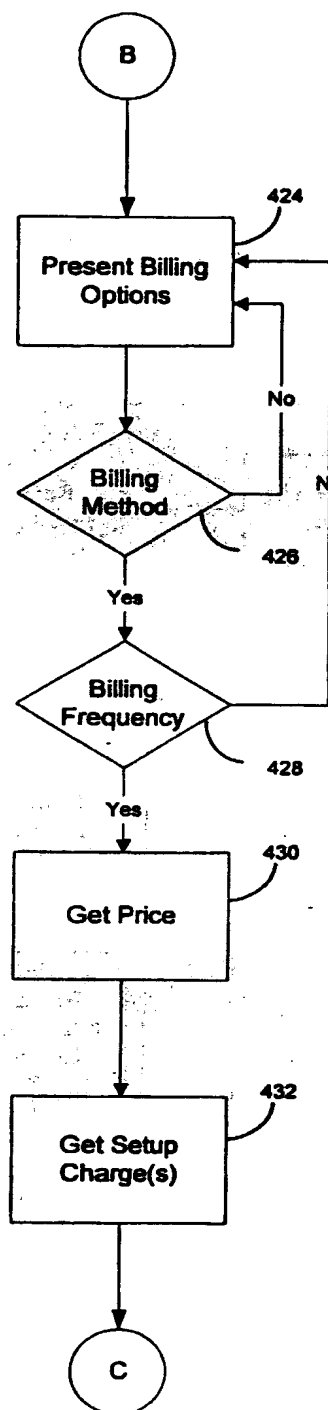


FIG. 13

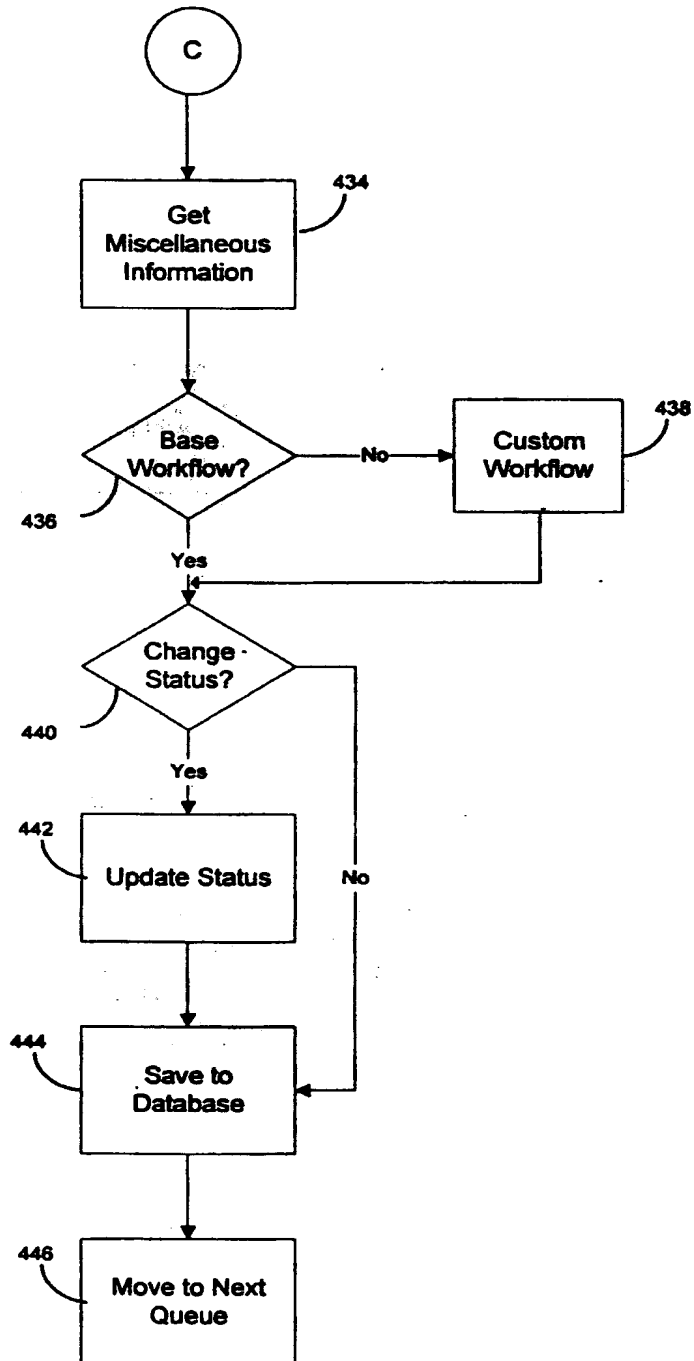


FIG. 14

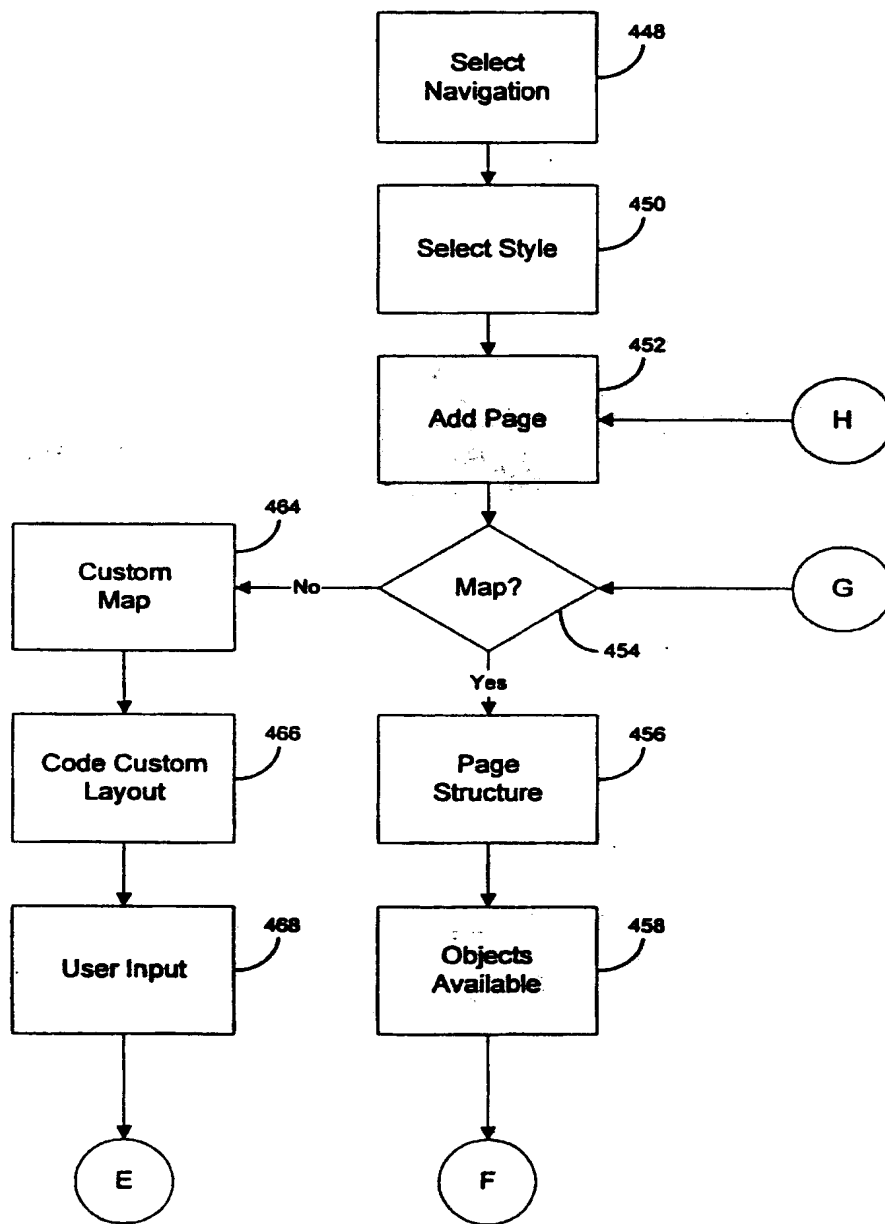


FIG. 15

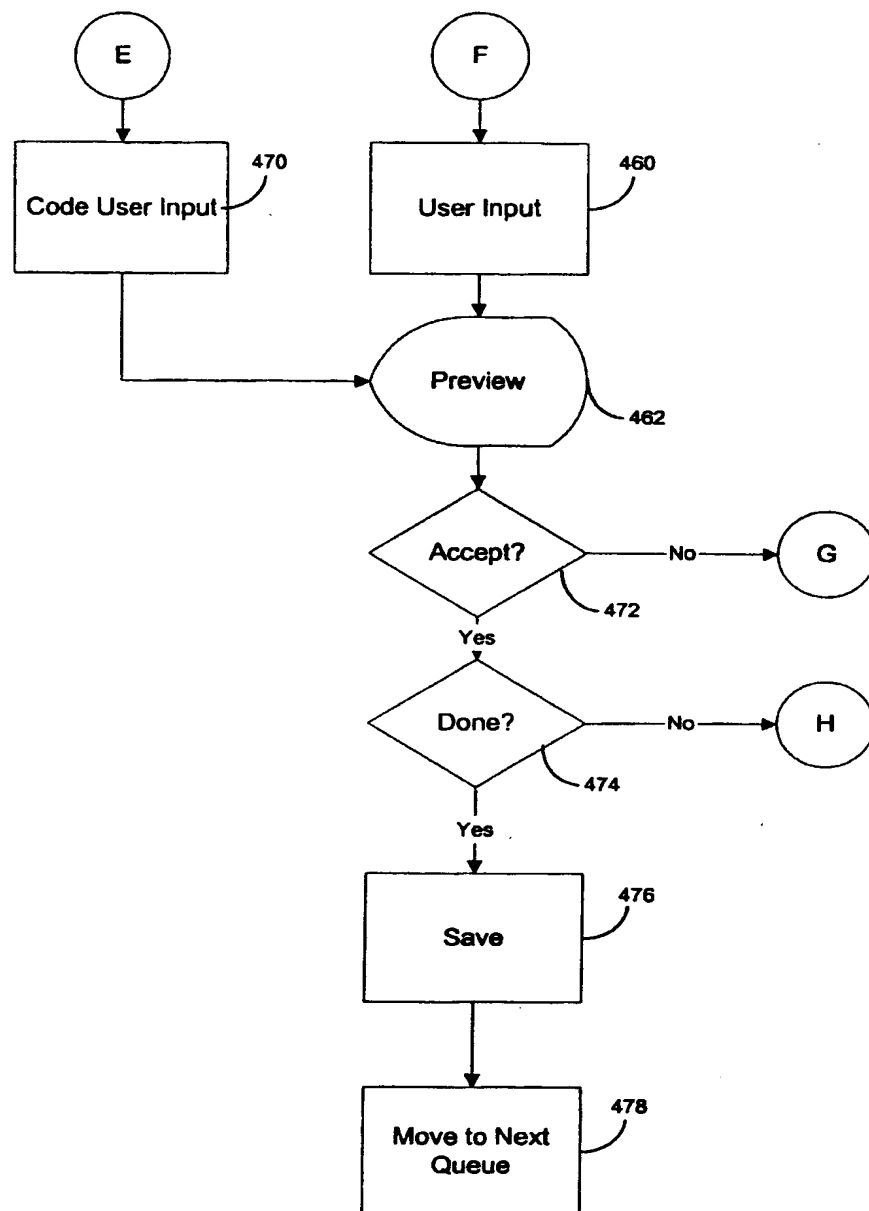


FIG. 16